

ANNA UNIVERSITY : : CHENNAI – 600 025

UNIVERSITY DEPARTMENTS

CURRICULUM – R 2008

B.E. INFORMATION TECHNOLOGY

I & II SEMESTERS CURRICULUM AND SYLLABI

SEMESTER - I

CODE NO.	COURSE TITLE	L	T	P	C
THEORY					
HS9111	Technical English - I	3	1	0	4
MA9111	Mathematics - I	3	1	0	4
PH9111	Engineering Physics	3	0	0	3
CY9111	Engineering Chemistry	3	0	0	3
GE9111	Engineering Graphics	2	0	3	4
GE9112	Fundamentals of Computing	3	0	0	3
PRACTICAL					
PH9112	Physics Laboratory	0	0	2	1
CY9112	Chemistry Laboratory	0	0	2	1
GE9113	Engineering Practices Laboratory	0	0	3	2
GE9114	Computer Practices Laboratory	0	0	3	2
	TOTAL	17	2	13	27

SEMESTER II

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
HS 9161	Technical English II	2	0	2	3
MA 9161	Mathematics II	3	1	0	4
PH 9168	Physics for Communication Engineering	3	0	0	3
GE 9151	Engineering Mechanics	3	1	0	4
EC 9161	Electronic Devices and Circuits	3	0	0	3
CS 9151	Programming and Data Structures I	3	0	0	3
PRACTICAL					
EC 9167	Electronic Devices and Circuits Laboratory	0	0	3	2
CS 9153	Programming and Data Structures Laboratory I	0	0	3	2
	TOTAL	17	2	8	24

AIM:

To help students specialising in the field of Engineering and Technology develop their proficiency in oral and written communication in Technical English.

OBJECTIVES:

- To enable students improve their vocabulary and employ the words appropriately in different academic and professional contexts.
- To make students comprehend classroom lectures and technically oriented passages.
- To enable students develop suitable reading strategies that could be adopted while reading science related texts.
- To enable students acquire the ability to speak effectively in English in real life situations and work-related situations.
- To train students in academic and professional writing.

UNIT I**9+3**

Vocabulary - using words in context - use of suffixes to form nouns from verbs and adjectives – adjectives, adverbs - matching words with meanings - Active and passive voices – tenses - simple present, present continuous - comparative adjectives – adverbial forms - Reading text: skimming for general information - specific details - note making - cloze reading – Listening and transferring of information from text to graphic forms - bar charts, flow-charts - Paragraph writing - descriptions using descriptive words and phrases - organising information - Role play - conversational techniques – discussions - oral reporting.

UNIT II**9+3**

Vocabulary items - words with prefixes (“multi-“, “under-“) - Asking and answering questions, error correction - spelling and punctuation - Reading Comprehension - scanning for information – inferring meaning from context - Listening and guided note-taking - paragraph writing - using notes – giving suitable headings / subheadings for paragraphs – Comparing and contrasting using expressions of comparison - Discussion using creative ideas

UNIT III**9+3**

Compound nouns - negative prefixes – antonyms – Use of modal verbs – making sentences using phrases – tenses – simple past and present perfect - Reading and guessing meanings in context - Listening and note taking - Channel conversion from text to chart - Writing comparisons - making recommendations - coherence using discourse markers - Discussion - role-play (explaining and convincing)

UNIT IV**9+3**

Expanding nominal compounds – words with multiple meanings – Error correction - prepositions - use of the prefix “trans-“ - compound adjectives - modal verbs to express probability - simple past and present perfect - Reading – prediction of content - understanding advertisements - scanning the text and comprehension check - Listening for details - Writing definitions – expression of use and purpose - Role-play – discussion - speculating about the future

UNIT V

9+3

Formation of nouns, verbs and adjectives from root words – some useful phrases and expressions - cloze exercises - 'If' conditional clauses – gerunds (verbal nouns) - Reading for comprehension - intensive reading - Accuracy in listening – listening to discussion on specific issues - Group discussion - role-play (stating, discussing problems and proposing solutions) - Planning a tour - Writing an itinerary - Writing formal letters - letter to the editor

LECTURE – 45 TUTORIAL – 15 TOTAL – 60 PERIODS

TEXTBOOKS

1. Department of Humanities and Social Sciences, Anna University, **English for Engineers and Technologists**, Vol. I and II (Combined Edition), Orient Longman, Pvt. Ltd., 2006. Themes 1 to 4.

REFERENCES

1. Day, R.A, Scientific English, Second Edition, Hyderabad: Universities Press, 2000.
2. Mitra, B.K, Effective Technical Communication: A Guide for Scientists & Engineers, New Delhi: Oxford University Press, 2006.
3. Website: www.uefap.co.uk

MA 9111

MATHEMATICS – I

L T P C

(Common to all branches of B.E. / B.Tech. Programmes) 3 1 0 4

AIM:

To make available the basic concepts of engineering mathematics, to prepare the student for new concepts to be introduced in the subsequent semesters and to provide the necessary mathematical skills that are needed in modeling physical processes by an engineer.

OBJECTIVES:

- To develop the use of matrix algebra techniques this is needed by engineers for practical applications.
- To make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
- To familiarize the student with functions of several variables which is needed in many branches of engineering
- To introduce the concepts of improper integrals, Gamma, Beta and Error functions which are needed in engineering applications
- To acquaint the student with mathematical tools needed in evaluating multiple integrals and their usage

PH 9111	ENGINEERING PHYSICS	L	T	P	C
(Common to ALL Branches of B.E. / B.Tech. Programmes)		3	0	0	3

OBJECTIVE:

To introduce the basic physics concepts relevant to different branches of Engineering and Technology

UNIT I PROPERTIES OF MATTER 9

Elasticity – Poisson’s ratio and relationship between moduli (qualitative) – Stress-strain diagram – factors affecting elasticity – bending of beams – cantilever – bending moment – theory and experiment of Young’s modulus determination – Uniform and non-uniform bending – I shaped girders – twisting couple – hollow cylinder – shaft – torsion pendulum – determination of rigidity modulus – moment of inertia of a body (regular and irregular).

UNIT II ACOUSTICS AND ULTRASONICS 9

Classification of sound – loudness and intensity – Weber-Fechner Law – standard Intensity and Intensity level – decibel – reverberation – reverberation time — rate of growth and decay of sound intensity - derivation of Sabine’s formula – absorption coefficient and its determination – factors affecting acoustics of buildings : focussing, interference, echo, Echelon effect, resonance – noise and their remedies. Ultrasonics – production – magnetostriction and piezoelectric methods – detection of ultrasound – acoustic grating – Industrial applications – NDT - Ultrasonic method: scan modes and practice.

UNIT III THERMAL PHYSICS 9

Thermal expansion - thermal stress – expansion joints – bimetallic strips - thermal conductivity – conductions in solids – Forbe’s and Lees’ disc methods – thermal insulation of buildings – Laws of thermodynamics – Otto and diesel engines and their efficiency – entropy – entropy of Carnot’s cycle – reverse Carnot’s cycle – refrigerator.

UNIT IV APPLIED OPTICS 9

Interference - Michelson interferometer: construction, working, determination of wave length and thickness – anti-reflection coating – air wedge and its application – Lasers – Einstein’s coefficients – CO₂, Nd:YAG and semiconductor lasers - construction and working – applications – Optical fibres – classification (index & mode based) – principle and propagation of light in optical fibres – acceptance angle and numerical aperture – fibre optic communication system - active and passive sensors.

UNIT V SOLID STATE PHYSICS 9

Nature of bonding – growth of single crystals (qualitative) - crystal systems - crystal planes and directions – expressions for interplanar distance – coordination number and packing factor for simple structures: SC, BCC, FCC and HCP – structure and significance of NaCl, ZnS, diamond and graphite – crystal imperfections: point defects, dislocations and stacking faults.

TOTAL : 45 PERIODS

TEXT BOOKS:

1. Palanisamy, P.K., Engineering Physics, Scitech Publications (P) Lt, 2006.
2. Arumugam, M., Engineering Physics, Anuradha Publ., 2000.

REFERENCES:

1. Gaur R.K., and Gupta, S.L Engineering Physics, Dhanpat Raj Publ., 2003.
2. Sankar B.N., Pillai.S.O., Engineering Physics, New age International (P) Ltd, 2007

CY9111	ENGINEERING CHEMISTRY	L	T	P	C
	(Common to all branches of Engineering and Technology)	3	0	0	3

AIM:

To gain a sound knowledge of thermodynamics, phase rule, surface chemistry and catalysis, basic organic reaction mechanisms and principles and applications of spectroscopy and nanochemistry.

OBJECTIVES:

To make the student conversant with the

- Applications of second law of thermodynamics.
- Phase rule and various types of alloys
- Surface chemistry and its importance in adsorption and catalysis.
- Basic principles in organic reaction mechanisms and principles and applications of spectroscopy
- Nanochemistry and its applications

UNIT I THERMODYNAMICS 9

Statement of second law of thermodynamics – Clausius and Kelvin – definition of entropy – entropy change for a reversible process – entropy change for flow of heat in an irreversible process – entropy change for an isothermal expansion of an ideal gas – problems – entropy of phase transitions- problems – definition of free energy and work function – Gibbs Helmholtz equation – applications – problems – derivation of Maxwell relations – van't Hoff isotherm and isochore – applications – problems – chemical potential – variation of chemical potential with temperature and pressure - significance.

UNIT II PHASE RULE 9

Phase rule – statements and explanation of the terms involved – condensed phase rule – construction of phase diagram – water system – sulphur system – phase rule for two component alloy systems- thermal analysis – eutectic system - Lead-Silver system – simple eutectic formation – Zinc-Magnesium alloy system – Iron-Carbon alloy system- solved examples.

UNIT III SURFACE CHEMISTRY AND CATALYSIS 9

Adsorption – types of adsorption – adsorption of gases on solids – adsorption isotherm – Freundlich and Langmuir isotherms – adsorption of solutes from solutions – applications – role of adsorption in catalytic reactions – ion exchange adsorption – basic principles in adsorption chromatography – Catalysis – classification – characteristics of catalysis - auto catalysis – enzyme catalysis – Michaelis – Menton equation – solid acid catalysis.

UNIT IV ORGANIC REACTIONS AND SPECTROSCOPY 9

Electrophilic and nucleophilic, substitution and elimination reactions mechanisms – SN^1 , SN^2 , E^1 , E^2 reactions – Electromagnetic spectrum – absorption of radiation – electronic transition – vibrational transition – rotational transition – intensities of spectral lines – Beer-Lambert's law – type of instrument used for absorption measurements – UV & visible spectroscopy, IR spectroscopy – principles of instrumentation and applications.

UNIT V NANOCHEMISTRY 9

Introduction to nanochemistry – preparations and properties of nanomaterials - nanorods – nanowires – nanotubes – carbon nanotubes and their applications – nanocomposites – sensors and electronic devices – nanochemistry in biology and medicines – nanocatalysis.

TOTAL : 45 PERIODS

TEXT BOOKS:

1. Puri B.R., Sharma L.R. and Madhan S. Pathania, Principles of Physical Chemistry, Shoban Lal Nagin Chand & Co. Jalandar –2000.
2. Jain P.C. and Renuka Jain, Physical Chemistry for Engineers, Dhanpet Rai & Sons, New Delhi, 2001.

REFERENCES

1. Bahl B.S., Tuli G.D., and Arun Bahl, Essentials of Physical Chemistry, S. Chand & Company Ltd., New Delhi, 2004.
2. Morrison R.T., & Boyd R.N., Organic chemistry, Prentice-Hall of India Private Limited, New Delhi, 1992.
3. Sanyal S.N., Reactions, Rearrangements and Reagents Bharati Bhawan Publishers & Distributors New Delhi, 2006.
4. G. B. Sergeev, Nanochemistry, Elsevier Science, New York, 2006

GE 9111 ENGINEERING GRAPHICS L T P C
(Common to All branches of B.E. / B.Tech. Programmes) 2 0 3 4

OBJECTIVES:

To develop in students the graphic skills that would enable them to communicate the concepts, ideas and design of engineering products

To provide an exposure to the national/international standards related to technical drawings

INTRODUCTION

2

Importance of graphics in engineering applications – use of drafting instruments – BIS specifications and conventions – size, layout and folding of drawing sheets – lettering and dimensioning

UNIT I FREE HAND SKETCHING OF ENGG OBJECTS AND CONSTRUCTION OF PLANE CURVE

3+9=12

Pictorial representation of engineering objects – representation of three dimensional objects in two dimensional media – need for multiple views – developing visualization skills through free hand sketching of three dimensional objects.

Polygons & curves used in engineering practice– methods of construction– construction of ellipse, parabola and hyperbola by eccentricity method – Cycloidal and involute curves- construction - drawing of tangents to the above curves.

UNIT II ORTHOGRAPHIC PROJECTION: PROJECTION OF POINTS, LINES AND PLANE SURFACES

6+9=15

General principles of orthographic projection – first angle projection – layout of views – projections of points, straight lines located in the first quadrant – determination of true lengths of lines and their inclinations to the planes of projection – traces – projection of polygonal surfaces and circular lamina inclined to both the planes of projection

UNIT-III ORTHOGRAPHIC PROJECTION: PROJECTION OF SOLIDS AND SECTIONS OF SOLIDS

6+9=15

Projection of simple solids like prism, pyramid, cylinder and cone when the axis is inclined to one plane of projection –change of position & auxiliary projection methods- sectioning of above solids in simple vertical positions by cutting plane inclined to one reference plane and perpendicular to the other and above solids in inclined position with cutting planes parallel to one reference plane – true shapes of sections

UNIT IV DEVELOPMENT OF SURFACES AND INTERSECTION OF SOLIDS

6+9=15

Need for development of surfaces – development of lateral surfaces of simple and truncated solids – prisms, pyramids, cylinders and cones – development of lateral surfaces of the above solids with square and circular cutouts perpendicular to their axes. Intersection of solids and curves of intersection –prism with cylinder, cylinder & cylinder, cone & cylinder with normal intersection of axes and with no offset.

UNIT V ISOMETRIC AND PERSPECTIVE PROJECTIONS

4+9=13

Principles of isometric projection – isometric scale – isometric projections of simple solids, truncated prisms, pyramids, cylinders and cones – principles of perspective projections – projection of prisms, pyramids and cylinders by visual ray and vanishing point methods.

COMPUTER AIDED DRAFTING (DEMONSTRATION ONLY)

3

Introduction to computer aided drafting software packages and demonstration of their use.

L=30 P=45 TOTAL: 75 PERIODS

TEXT BOOKS

1. Bhatt,N.D, "Engineering Drawing", Charotar Publishing House, 46th Edition-2003
2. Natarajan,K.V, " A Textbook of Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2006 .

REFERENCES

1. Shah,M.B and Rana,B.C.,"Engineering Drawing", Pearson Education,2005,
2. Gopalakrishnan.K.R,. "Engineering Drawing I & II", Subhas Publications 1998.
3. Dhananjay,A.J., "Engineering Drawing with Introduction to AutoCAD", Tata McGraw-Hill Publishing Company Ltd., 2008.
4. Venugopal,K. and Prabhu Raja, V., "Engineering Graphics", New Age International(P) Ltd.,2008.

Codes from Bureau of Indian Standards

1. IS 10711-2001: Technical Products Documentation – Size and Layout of Drawing Sheets
2. IS 9609 (Parts 0 & 1)-2001: Technical Products Documentation – Lettering
3. IS 10714(Part 20)-2001 & SP 46 -2003: Lines for Technical Drawings
4. IS 11669-1986 & SP 46-2003: Dimensioning of Technical Drawings
IS 15021(Parts 1 to 4)-2001: Technical Drawings-Projection Methods

Special points applicable to University Examinations on Engineering Graphics:

1. There will be five questions one from each unit covering all units of the syllabus
2. All questions will carry equal marks of 20 each making a total of 100
3. Answer paper shall consist of drawing sheets of A3 size only. The students will be permitted to use appropriate scale to fit solutions within A3 size
4. The examination will be conducted in appropriate sessions on the same day

GE 9112 FUNDAMENTALS OF COMPUTING L T P C
(Common to all branches of B.E. / B.Tech. Programmes) 3 0 0 3

AIM:

To introduce the basics of computing and the fundamentals of C programming.

OBJECTIVES:

- To introduce the fundamentals of computing systems.
- To introduce the concepts of internet and WWW.
- To teach programming in C.

UNIT I	9
Computer systems – Exploring computers – Inside the system – Processing data – CPUs – Types of storage devices - Operating systems basics – Networking basics.	
UNIT II	9
The internet and the WWW – Internet services – connecting to the internet - Working with applications software – productivity software – graphics and multimedia – Data base Management systems – Creating computer program.	
UNIT III	9
C programming fundamentals – compilation process – variables – Data types – Expressions – looping – decisions.	
UNIT IV	9
Arrays - Working with functions – structures – character strings – pre processor.	
UNIT V	9
Pointers – Dynamic memory allocation – linked list - Applications	

TOTAL: 45 PERIODS

TEXT BOOKS

1. Peter Norton, “Introduction to Computers”, Sixth Edition, Tata McGraw Hill, 2007.
2. Stephen G. Kochan, “Programming in C”, Third Edition, Pearson Education, 2007.

REFERENCES

1. Kernighan,B.W and Ritchie,D.M, “The C Programming language”, Second Edition, Pearson Education, 2006
2. Ashok N. Kamthane, “Computer programming”, Pearson Education, 2007.
3. Kenneth A. Reek, “Pointers on C”, Pearson Education, 2007.
4. Dromey,R.G, “How to solve it by Computer”, Pearson Education, 2007.

PH 9112	PHYSICS LABORATORY	L T P C
	(Common to ALL Branches of B.E. / B.Tech. Programmes)	0 0 2 1

- | | |
|--------------------------|--|
| 1. Torsional Pendulum- | Determination of rigidity modulus of wire and moment of Inertia of disc. |
| 2. Non-uniform bending - | Determination of Young’s modulus. |
| 3. Lees’ disc- | Determination of thermal conductivity of a bad conductor. |
| 4. Potentiometer | - Determination of thermo e.m.f of thermocouple |
| 5. Air wedge- | Determination of thickness of a thin sheet of paper. |
| 6. i. Optical fibre | - Determination of Numerical Aperture and acceptance angle |
| ii. Compact disc - | Determination of width of the groove using laser. |

- | | |
|--------------------------|--|
| 7. Acoustic grating - | Determination of velocity of ultrasonic waves in liquids. |
| 8. Post office box - | Determination of Band gap |
| 9. Spectrometer - | Determination of wavelength using grating |
| 10. Viscosity of liquid- | Determination of co-efficient of viscosity of a liquid by Poiseuille's flow. |

TOTAL: 30 PERIODS

CY9112	CHEMISTRY LABORATORY	L T P C
	(Common to all branches of Engineering and Technology)	0 0 2 1

I. WEIGHING AND PREPARATION OF STANDARD SOLUTIONS

- i) Preparation of molar and normal solutions of the following substances oxalic acid, sodium carbonate, sodium hydroxide, and hydrochloric acid.
- ii) Preparation of buffer solutions: borate buffer, phosphate buffer using Henderson equation.

2. WATER ANALYSIS

- i) Determination of total hardness, temporary & permanent hardness of water by EDTA method.
- i) Determination of DO content by Winkler's method.
- ii) Determination of alkalinity in a water sample.
- iii) Determination of chloride content of water sample by argentometric method.

3. PH-METRY

To find out the strength of given hydrochloric acid by sodium hydroxide.

4. CONDUCTOMETRY

- i) Conductometric titration of mixture of acids
- ii) Conductometric precipitation titration using BaCl_2 - Na_2SO_4

5. POTENTIOMETRY

- i) Redox titration – Iron Vs. dichromate

6. SPECTROPHOTOMETRY

- i) To determine λ_{max} of a colored solution such as potassium permanganate.
- ii) To determine the iron content of an unknown solution (1,10- phenanthroline/ thiocyanate method)

7. FLAME PHOTOMETRY

- i) To determine sodium and potassium in water.

8. VISCOMETRY

- i) Determination of molecular weight of a polymer

9. WATER POLLUTION

- i) COD analysis of a waste water by dichromate method.

10. KINETICS

- i) Determination of reaction rate constant of acid catalyzed hydrolysis of ester.

11. ADSORPTION

- i) Adsorption of acetic acid on activated charcoal.

TOTAL: 30 PERIODS

REFERENCE BOOKS

1. A text of quantitative Inorganic Analysis, A. L. Vogel , ELBS London. 1995.
2. Experiments in physical chemistry, D.P. Shoemaker and C.W. Gardad, McGraw Hill, London, 2001.

GE 9113

ENGINEERING PRACTICES LABORATORY
(Common to all Branches of B.E. / B.Tech. Programmes)

L T P C
0 0 3 2

OBJECTIVE

To provide exposure to the students with hands-on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

GROUP – A (CIVIL & ELECTRICAL)

1. CIVIL ENGINEERING PRACTICE

12

Plumbing

Basic pipe connections involving the fittings like valves, taps, coupling, unions, reducers, elbows and other components used in household fittings. Preparation of plumbing line sketches.

Laying pipe connection to the suction side of a pump – inlet.

Laying pipe connection to the delivery side of a pump – out let.

Practice in mixed pipe connections: Metal, plastic and flexible pipes used in household appliances.

Wood Work

Sawing, planning and making common joints: T-Joint, Mortise and Tennon joint, Dovetail joint.

Study

Study of joints in door panels, wooden furniture

Study of common industrial trusses using models.

2. ELECTRICAL ENGINEERING PRACTICE 9

Basic household wiring using switches, fuse, indicator – lamp etc.,

Preparation of wiring diagrams

Stair case light wiring

Tube – light wiring

Study of iron-box, fan with regulator, emergency lamp

GROUP – B (MECHANICAL AND ELECTRONICS) 15

3. MECHANICAL ENGINEERING PRACTICE

Welding

Arc welding of butt joints, lap joints, tee joints

Gas welding Practice.

Basic Machining

Simple turning, drilling and tapping operations.

Machine assembly Practice.

Study and assembling the following:

Centrifugal pump, mixies and air conditioners.

Demonstration on

(a) Smithy operations like the production of hexagonal bolt.

(b) Foundry operation like mould preparation for grooved pulley.

4. ELECTRONIC ENGINEERING PRACTICE

9

Soldering simple electronic circuits and checking continuity.

Assembling electronic components on a small PCB and testing.

Study of Telephone, FM radio, low-voltage power supplies.

TOTAL: 45 PERIODS

GE 9114 COMPUTER PRACTICE LABORATORY L T P C
(Common to all branches of B.E. / B.Tech. Programmes) 0 0 3 2

AIM:

The aim is to teach the use of computer applications related to office automation and to teach implementation of C programs.

OBJECTIVES:

- To introduce office automation software packages.
 - To teach the fundamentals in C programming.
1. Simple OS commands and simple editors for file operations.
 2. Word processors for more complex operations, like formatting documents, creating tables and so on.
 3. Simple data base packages for creating and manipulating databases.
 4. Spread sheet packages for data preparation and analysis.
 5. Preparation of reports involving mathematical functions (Income Tax Statement, Mark sheets, Payroll etc.,)
 6. C Programs using one dimensional arrays.
 7. C Programs using multi-dimensional arrays and pointer data types.
 8. Programs using structures, nested structures and union.
 9. Programs using functions- recursive, non-recursive and Library functions.
 10. Programs for passing aggregate data types as parameters between functions.

11. Programs for dynamic memory allocation / deallocation.
12. Programs for self-referential structure – Implementing linked list.

TOTAL: 45 PERIODS

HS 9161	TECHNICAL ENGLISH II	L	T	P	C
	(For all branches of B.E. / B.Tech. Programmes)	2	0	2	3

AIM:

To help students specialising in the field of Engineering and Technology develop their proficiency in oral and written communication in Technical English.

OBJECTIVES:

- To enable students develop their critical thinking skills.
- To enable students develop higher order reading skills such as interpreting, evaluating and analysing.
- To enable students develop their active listening skills.
- To enable students participate successfully in Group Discussions.

UNIT I **6**
 Word formation using prefixes ‘self’ – modified cloze – contextual meanings - Sequencing words - future simple passive form - Predicting content – Intensive reading – interpreting advertisements – Listening and completing table – Writing extended definition – describing a process using sequence words – developing ideas into paragraphs – writing about the future.

UNIT II **6**
 Identifying objects and their use – word puzzles using words with suffixes – Prepositions – adverbs – structures that express purpose - adjectives – group discussion – Reading - skimming for content and analysis of style – modes of non verbal communication – Listening and categorising data in tables – Writing formal letter – writing paragraphs on various issues.

UNIT III **6**
 Stress and intonation - Cause and effect expressions - Tense forms - simple past and past continuous - Different grammatical forms of the same word - Critical reading - guided note-making and evaluating content - Listening – guided note-taking – completing a table – Role-play – group discussion techniques - discussing an issue – offering suggestions – Sequencing jumbled sentences using coherence markers– Writing a report – Writing recommendations – Writing a letter of complaint.

UNIT IV **6**
 Numerical adjectives - Prepositions – use of intensifying prefixes – phrasal verbs - different grammatical forms of the same words – cloze exercise - Reading a text and evaluating the content - advertisements – analysing style and language - Listening and

entering classified information – Intensive listening and completing the steps of a process - Role-play - Group discussion expressing opinions and convincing (agreeing and disagreeing) - Giving oral instructions – Descriptive writing - writing based on hints – writing argumentative paragraphs – formal letter writing – letter of application with biodata / CV Writing safety instructions - warnings and notices – preparing checklist – email communication.

UNIT V

6

Identifying problems, their causes and finding solutions using case studies – creative and critical thinking – levels of thinking – thinking strategies – brainstorming - analytical reasoning skills – evaluative essay – decision making – conflict resolution

English Language Lab

(30 Periods)

1. Listening: (10)

Recognising English sounds – accents - listening & answering questions - gap filling - listening & note making - listening to telephonic conversations - listening to speeches.

2. Speaking: (10)

Pronouncing words & sentences correctly - word stress - conversation practice.

3. Reading: (5)

Cloze test - Reading and answering questions - sequencing of sentences.

4. Writing: (5)

Correction of errors - Blogging.

TOTAL : 60 PERIODS

TEXTBOOK

1. Department of Humanities & Social Sciences, Anna University. English for Engineers and Technologists, Combined edition Vols. I & II. Chennai: Orient Longman, Pvt. Ltd. 2006, Themes 5 to 8 (for Units 1 – 4)
2. Sunita Mishra & C. Muralikrishna, Communication Skills for Engineers, Pearson Education, Second Impression, 2007. (for Unit 5)

REFERENCES

1. Ashraf, R.M, Effective Technical Communication, New Delhi: Tata McGraw Hill, 2007.
2. Thorpe, E & Thorpe, S, Objective English, New Delhi : Pearson Education, 2007.
3. Joan Van, Emden, A Handbook of writing for Engineers, Cambridge University Press, 1997
4. Website: www.englishclub.com

LAB REQUIREMENTS

1. Teacher – Console and systems for students
2. English Language Lab Software
3. Tape Recorders

MA 9161

MATHEMATICS - II
(Common to all branches of B.E. / B.Tech Programmes)

L T P C
3 1 0 4

AIM:

To introduce the effective mathematical tools needed for solving engineering problems and to emphasize the underlying mathematical principles in specific situations confronting practicing engineers.

OBJECTIVES:

- To make the student acquire sound knowledge of techniques in solving ordinary differential equations that model engineering problems
- To acquaint the student with the concepts of vector calculus, needed for problems in all engineering disciplines
- To develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current
- To make the student appreciate the purpose of using transforms to create a new domain in which it is easier to handle the problem that is being investigated

UNIT I DIFFERENTIAL EQUATIONS

9+3

Method of variation of parameters – Method of undetermined coefficients – Homogenous equation of Euler's and Legendre's type – System of Simultaneous linear differential equations with constant coefficients.

UNIT II VECTOR CALCULUS

9+3

Gradient and directional derivative – Divergence and Curl – Irrotational and Solenoidal vector fields – Line integral over a plane curve – Surface Integral and Volume Integral - Green's, Gauss divergence and Stoke's theorems – Verification and Application in evaluating line, surface and volume integrals.

UNIT III ANALYTIC FUNCTION

9+3

Analytic functions – Necessary and sufficient conditions for analyticity - Properties – Harmonic conjugates – Construction of analytic function - Conformal Mapping – Mapping by functions $w = z+c$, az , $\frac{1}{z}$, z^2 - Bilinear transformation.

UNIT IV COMPLEX INTEGRATION

9+3

Line Integral - Cauchy's theorem and integral formula – Taylor's and Laurent's Series – Singularities – Residues – Residue theorem – Application of Residue theorem for

- Ashok Gupta, Interactive Engineering Mechanics – Statics – A Virtual Tutor (CDROM), Pearson Education Asia Pvt., Ltd., 2002
- J.L. Meriam & L.G. Kraige, Engineering Mechanics Vol. I & Vol. II, V edition, John Wiley & Sons, 2006.
- P. Boreasi & J. Schmidt, Engineering Mechanics Statics & Dynamics, Micro Print Pvt. Ltec., Chennai, 2004.

EC 9161

ELECTRONIC DEVICES AND CIRCUITS

**L T P C
3 0 0 3**

UNIT I VOLTAGE AND CURRENT LAWS 9
Nodes, Paths, Loops, and Branches; Kirchoff's Current Law, Kirchoff's Voltage Law, Single Loop Circuit, Single Node-Pair Circuit, Series and Parellel Connected Independent Sources, Resistors in Series and Parellel, Voltage and Current Division

UNIT II CIRCUIT ANALYSIS TECHNIQUES 9
Linearity and Superposition, Sources Transformation, Thevinin and Norton Equivalent Circuits, Maximum Power Transfer, Delta-Wye Conversion, Single Phase and 3 Phase Circuits-Power Factor-Power-Concept of Phasor Diagrams.

UNIT III SEMICONDUCTOR DEVICES 9
PN-Junction Diode- Drift and Diffusion Current-Zener Diode-Zener Regulator-BJT-V-I Charecteristics-CE Configuration-Current Equation h-Parameter Model.JFET- V-I Charesteristics- Current Equation- Transconductance MOSFET-Types DMOS, EMOS – V-I Charesteristics-Moll Current Equation Equalitine Treatment only.

UNIT IV RECTIFIER, AMPLIFIER AND OSCILLATOR 9
FWR-Filter-Capacitors Input Filter-Choke Input Filter – CE Amplification with and without feedback – Analysis and Frequency Response – CS MOSFET Amplifier - Analysis

UNIT V OPERATIONAL AMPLIFIER 9
Introduction of an Inverting Amplifier, Non Inverting Amplifier, Basic Application of Operation Amplifier: Subractor, Summing Amplifier, Digital to Analogue nvertor, Low Pass Filter, First Order Low Pass Filter, First Order High Pass Filter, Integrator, Differentiator.

TOTAL: 45 PERIODS

TEXT BOOKS

- David A.Bell 'Electronic Devices and Circuit/ -Oxford press-2008.
- Robert T.Paynter Introductory Electronic Devices and Circuits – Pearson Education- Sixth Edition

REFERENCES

- Denal A.Neamar, Electronic Circuit Analysis and Design – Second Edition – Tata MCGraw Hill, 2002.
- Adel S.Sedia Keanath Cswith Micro Electronic Circuit-Fourth Edition-Oxford University Press-1998.

AIM:

The aim is to review the basics of C programming and to introduce the concepts of Data Structures.

OBJECTIVES:

- To introduce the basics of C programming language.
- To introduce the concepts of ADTs.
- To introduce the concepts of Hashing and Sorting.

UNIT I**8**

Programming Style: Names – Expressions and Statements – Consistency and Idioms – Function Macros – Magic Numbers – Comments – Review of C Programming: Types, Operators and Expressions – Control Flow – Functions and Program Structure

UNIT II**8**

C Programming: Pointers and Arrays – Structures – Input and Output - Files – Preprocessor.

UNIT III**10**

Lists, Stacks, and Queues: Abstract Data Types (ADTs) – List ADT – Stack ADT – Queue ADT

UNIT IV**9**

Trees: Preliminaries – Binary Trees – Search Tree ADT – Binary Search Trees – Hashing: ADT – Hash Function – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing

UNIT V**10**

Sorting: Insertion Sort – Shell Sort – Heap Sort – Merge Sort – Quick Sort – External Sorting

TOTAL: 45 PERIODS**TEXT BOOKS**

1. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd ed., Pearson Education, 1988. (Units 1 and 2)
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd ed., Pearson Education, 1997. (Units 3, 4, 5)

REFERENCES

1. Brian W. Kernighan and Robert Pike, "The Practice of Programming", Pearson Education, 1999.
2. Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education, 1983.
3. Stephen G. Kochan, "Programming in C", 3rd ed., Pearson Education, 2005.
4. Herbert Schildt, "C: The Complete Reference", 4th ed., Tata McGraw-Hill, 2000.
5. Aaron M. Tenenbaum, Yedidyah Langsam, Moshe J. Augenstein, "Data Structures using C", Pearson Education, 1998.

6. Robert Kruse, C.L. Tondo, Bruce Leung, "Data Structures, Program Design in C", 2nd ed., Pearson Education, 1997.

EC9167

ELECTRONIC DEVICES AND CIRCUITS LAB

L T P C
0 0 3 2

1. PN Junction Diode Characteristics
2. Zener Diode Characteristics
3. HalfWave and FullWave Rectifier
4. Zener Regulator
5. CE Transistor Characteristics
6. UJT Characteristics
7. 00000.FET Characteristics
8. SCR Characteristics
9. Frequency Response of CE,CB,and CC Amplifier with self-bias, fixed bias and controller to Feedback bias
10. Application of 555 Timer
11. Verification of Kirchoff's Laws and Network Theorem
12. Applications of Operational Amplifier
13. RC and LC Oscillators
14. Coupled Circuits

TOTAL: 45 PERIODS

1. Programs for Control Structures, Arrays, and Functions.
2. Programs using pointers.
3. Programs using structures.
4. Programs using file IO and preprocessing.
5. Array implementation of List Abstract Data Type (ADT)
6. Linked list implementation and cursor implementation of List ADT
7. Stack ADT – Array and linked list implementations
8. Implement any Stack application using an appropriate header file for the Stack ADT, a separate source file for the array implementation of the Stack ADT, and a separate source file for the application. Use the linked list implementation instead of the array implementation, keeping the other files the same.
9. Implement source files for other applications of the Stack ADT and use the array and linked list implementations interchangeably.
10. Implement the Queue ADT in different ways and use it for different applications.
11. Search ADT using different implementations including Sorted Link List, Binary Search Tree hashing, and different applications.
12. Sorting

TOTAL: 45 PERIODS